

REMARKS/ARGUMENTS

Status of the Claims

Claims 1-13 and 16-24 stand rejected.

Claims 14 and 15 are cancelled. Claims 25-63 are presently withdrawn pursuant to a restriction requirement.

As a result, Claims 1-13 and 16-63 are now pending in this application.

Claim Rejections - 35 USC § 103

Claims 1-13 and 16-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Periyalwar (US 6,611,695), as taken in view of Adachi et al. (US 2003/0064752 A1), and further in view of Corbell et al. (US 3,747,109).

Regarding claim 1, it is asserted that Periyalwar discloses a wireless communication system, comprising: a multi-beam directed signal system configured for directed wireless computing communication with a computing device; and an antenna assembly configured to receive the directed wireless communication and emanate wireless communication within a directed beam with the computing device.

Applicant again notes that the Periyalwar reference is not conceded to be prior art, and reserves the right to swear behind the asserted reference at a later date, if necessary.

Applicants' application and independent claims, as amended, relate to a data communication system for computing devices such as a local area network (LAN) or wide area network (WAN) computing network. As recited in the Background section, one shortcoming of wireless data communication is a relatively low bandwidth compared to a wired LAN or WAN system.

The Periyalwar reference describes a method and apparatus for assigning frequency channels to a particular beam within an omni directional multi-beam cellular voice phone system having channels which communicate equally in all directions. In Periyalwar, a (fixed) geographic region is divided up into a plurality of (fixed) hexagonally-shaped "cells," each cell having a central base station for receiving and transmitting to and from wireless telecommunication devices located within the cell. Each cell is sectorized, and/or subdivided, and thereafter the fixed geographical cell

area is serviced by a number of beams using directional antennae.

Thus, Periyalwar concerns itself with a series of inter-related fixed, omni-directional communication beams, and the means for managing and transferring communications from a cellular communication device that is moving among and between such cells. As shown in Figure 1 of the Periyalwar reference, the radial extent of each beam is set to reach to the cell boundary.

The Periyalwar reference relates to means for assessing channel quality within each such beam, and select an acceptable channel from among those that are available. The Periyalwar reference does not describe any mechanism for adjusting beam characteristics, such as by associating a transmission peak and/or null with a particular communication beam. The Periyalwar reference does not teach or disclose any manipulation of the beam characteristics whatsoever, or that any beam result in anything other than a geographically-fixed cell boundary.

Applicants' disclose and claim a system for making adjustments to a multi-beam directed signal system that is configured to determine a transmission peak for a particular directed wireless computing communication beam in a non-omni directional manner based on operational information associated with signal routing. The complementary beam-forming both increases side lobe levels, and works to direct a transmission null in a particular. In this manner, more power can be associated with a particular signal path and/or communication beam (i.e., associated with a transmission peak), to increase communication range, to increase data integrity or data security.

Applicants' independent Claim 1 recites "the multi-beam directed signal system is configured to determine and adjust, by beam forming, a transmission peak for a particular directed wireless computing communication beam in a non-omni directional manner based on operational information associated with signal routing." This is very different than simply choosing a channel in an omni-directional cellular voice phone system as described the Periyalwar reference, for the purpose of managing signal strength during movement of mobile devices within a multi-beam cellular communications system.

The Adachi reference is cited as disclosing a multi-beam directed signal system wherein the multi-beam directed signal system is configured to determine and adjust, by complementary beam-forming, a transmission peak for a particular directed beam in a non-omni-directional

manner based on operational information associated with signal routing, and further configured to direct a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction (citing Fig. 12 and 15 and paragraphs 148, 151, 162, 164, 167, and 171- 174).

The Adachi application is further cited as teaching that the beam is adjusted to the direction of a device it is communicating to and narrows the beam on the device to reduce the null effect and maintaining power consumption for longer distance devices (complementary beam-forming). A transmission null is allegedly directed to maximize the power associated with the transmission peak and minimize interference in the particular direction, by directing the beam in a particular direction and narrowing it.

Applicant does not admit that the Adachi application is prior art and reserves the right to swear behind the same at a later date. The present application (Serial No. 10/700,329) was filed on November 3, 2003, and claimed the benefit of a related U.S. Provisional Application Serial No. 60/423,660, entitled "A Wireless Data Packet Communications System," filed on November 4, 2002 (see paragraph 1). Thus the effective filing date of the present application is November 4, 2002.

The Adachi application was published on April 3, 2003, on an application (Serial No. 10/242,632) filed September 13, 2002. Applicant reserves the right to swear behind the Adachi Application at a later date.

Nonetheless, in the interest of advancing the prosecution of the present application, Applicant respectfully submits that the elements and limitations of the claims of the present application can be distinguished from the teachings of the Periyalwar and Adachi references for at least the following reasons. Applicants' independent claim 1 presently recites:

a multi-beam directed signal system configured for 802.11 specification data packet wireless computing communication with a 802.11 client computing device;
and

an antenna assembly configured to receive and emanate wireless communication within a directed beam with the computing device,

wherein the multi-beam directed signal system is configured to determine and adjust, by complementary beam-forming to increase side lobe levels, a transmission peak for a particular directed beam in a non-omni-directional manner based on operational information associated with signal routing, and further configured to direct a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Applicants' independent claim 16 presently recites:

generating from a Wi-Fi switch a directed wireless communication for 802.11 specification data packet communication with a 802.11 client computing device; receiving the directed wireless communication at an antenna assembly;

emanating a directed communication beam associated with a transmission peak, which is adjusted relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner for the data communication with the computing device; and

directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

In response to an earlier Office Action, Applicant argued that the Adachi application does not describe, teach, or suggest, and is not equivalent to, complementary beam forming. That is, adjusting and narrowing does not equate to complementary beam forming as defined by the present disclosure, which entails more than mere directed wireless communications.

The cited portions of the Adachi application (Figs. 12 and 15, and paragraphs 148, 151, 162, 164, 167 and 171-174) appear to merely describe directing a communication beam, for example, by using weighting factors associated with a directional antenna, to reduce the influences of interference on an unintended base station or terminal using an identical channel. The reference, however, does not teach complementary beam forming as described above, as the purpose and design of the beam forming in the Adachi application is very different. The Periyalwar reference does not appear to cure the stated deficiencies in the Adachi application, as acknowledged by the Office Action.

The Adachi Application is directed towards improving communications between base stations without them being influenced by communications between the base station and

terminals (see, for example, paragraphs [0011] to [0015] of the Adachi application).

Paragraphs [0114] - [0117] of the present application describe complementary beam forming as "a technique to reduce the effect of communication beam nulls and increase side lobe levels without a severe power penalty to the main beam." Complementary beam-forming, as described in the present application, is utilized as a technique to ensure a minimum transmit power in all directions, by reducing the "hidden beam" effect of nulls in certain directions that may accompany a directional communication beam, such as in Adachi. That is, fanning directional transmit communication beams, as in Adachi, has the side effect of hiding the transmitted energy from some client devices, negatively impacting their carrier sense mechanisms in a network. Since the present invention is intended to be an open network, the hiding of the beam from certain areas or client devices is directly contrary to the purpose of the invention, which is both inclusive as to the range of generation of the beam, and restrictive as to deliberately directing transmission nulls where there is interference and the like.

For example of the difference, a client device can measure the energy transmitted from access points and from other client devices. If a client device cannot detect the presence of other transmissions, due to use of directional communication beams, it may interpret the medium as being idle and attempt to access the medium, when, in fact, the medium is busy. These competing access attempts have a burdening effect on the performance of the network.

Complementary beam-forming, as claimed and defined by the present application, ensures that multiple transmit beams in arbitrary directions are complemented by another beam in all other directions. The complementary beam does not interfere with the intended beams and increases the probability that other users in the network can detect whether the medium is idle or available for their use, thus contributing to the efficient usage of the network.

The Periyalwar reference, alone or in combination with the Adachi application, does not appear to describe, teach or suggest using complementary beam-forming. Complementary beam-forming is discussed in the specification, as originally filed, at paragraphs 0114 - 0117, among others. Complementary beam-forming ensures, in part, a minimum transmit power in all directions while preserving the shape of the main communication beam, e.g., transmission peak, such that clients other than an intended client

device are able to ascertain whether the communication medium is busy or idle (and available).

Finally, the Periyalwar reference, alone or in combination with the Adachi application, does not appear to describe, teach or suggest a multi-beam directed signal system configured to direct a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction. As set forth generally in paragraph 0024, and in more detail in paragraphs 0105 - 0108, of the specification as originally filed, a transmission null occurs in a transmission pattern when a relatively insignificant amount of energy is transmitted in a particular direction.

While it is not the sole deficiency of the Periyalwar and Adachi applications, the Patent Office concedes that those references taken alone or together, do not teach increasing side lobe levels when beam-forming, and for this purpose, the Corbell et al. patent is cited as teaching increasing side lobe levels when beam-forming (col. 7, lines 16-19, the side lobes are increased to cover more area).

It is thus asserted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Corbell et al. into the teachings of Periyalwar and Adachi et al. for the purposes of improving the radiation detection within a generally rectangular area (col. 7, lines 16-19).

Corbell et al. teaches an alarm system that adapts Doppler frequency principles to enhance an alarm system using microwave energy (see Column 3, line 52, to Column 4, line 2). The intrusion detection apparatus includes a transmitting aperture adapted to produce a field beam of microwave energy that can be manipulated to fill an area to be monitored for intrusion by a moving body within the field, triggering an alarm at the presence of an intruder.

Corbell et al. does not relate to the field of communications, and, further, the electromagnetic systems employed are different, and employed for a different purpose. Even the section cited in the Office Action seems inapposite, as it states "Applicant has found that the

extension of the side lobes or the use of the essentially laterally projecting flanges improves the radiation detection within a generally rectangular area” (column 7, lines 16-19). The purpose is made clear in the next paragraph of the Corbell application, which notes the desired result as being that the total area of a room or warehouse can be “totally filled with the radiated energy field primarily as a result of the reflective nature of the walls such that the movement in any area will be detected”, and will product “maximum sensitivity to the most significant portion of the area being protected and the intrusion of a body most likely to be encountered.” (Column 7, lines 20 – 38).

Corbell et al., even taken with the Periyalwar and Adachi applications, does not disclose Applicants system for affirmatively directing a transmission null along a particular signal path (for example by assigning a zero weighting factor to a particular vector in a routing table) towards an undesired, possibly interfering, device or object, nor suggest how this could achieve a number of benefits described in the specification.

Applicants respectfully submit that the claimed “directing a transmission null” is not described, taught or suggested by the mere absence of a communication beam in a particular direction, nor implied by a discussion of directed communication beams, nor does the manipulation of microwave radiation patters taught by Corbell et al. cover the deficiency.

Therefore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of the Periyalwar and Adachi applications and adapt with the teachings of Corbell et al. for the purposes of without influencing other communications therefore reducing/preventing interference in the network (paragraph 11).

Regarding claim 2, while Periyalwar discloses a multi-beam directed signal system to multiple discrete cells of a cellular system, within which it is further configured to generate a second directed wireless computing communication to a second computing device, and wherein the antenna assembly is further configured to receive the second wireless communication and emanate a second directed computing communication beam for additional data communication

with the second computing device (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 3, while Periyalwar discloses a multi-beam directed signal system for a cellular network that is further configured to generate a second directed wireless computing communication to a second computing device the antenna assembly is further configured to receive the second wireless computing communication and emanate a second directed communication beam for additional data communication with the second computing device; and the antenna assembly is further configured to emanate the directed communication beam such that only the computing device will receive the data communication, and further emanate the second directed communication beam such that only the second computing device will receive the additional data communication (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 4, while Periyalwar discloses a multi-beam directed signal system for a cellular communications network system that is multi-channel and further configured for directed wireless computing communication with a second computing device; the antenna assembly is further configured to emanate the directed communication beam for data communication with the computing device via a first channel; and the antenna assembly is further configured to emanate a second directed communication beam for additional data communication with the second computing device via a second channel (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 5, while Periyalwar may disclose a multi-beam directed signal system that is multi-channel and further configured for directed wireless computing communication with a second computing device; the antenna assembly includes a phased array of antenna elements each configured to emanate a communication beam; the antenna assembly is further configured to emanate the directed communication beam from a first antenna element for the data communication with the computing device via a first channel; and the antenna assembly is further configured to emanate a second directed communication beam from a second antenna element for additional data communication with the second computing device via a second Channel (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by

complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 6, while Periyalwar may disclose a multi-beam directed signal system that is multi-channel and further configured for simultaneous directed wireless computing communication with a second computing device, and where the antenna assembly is further configured to emanate the directed communication beam for data communication transmission to the computing device via a first channel; and the antenna assembly is further configured to emanate a second directed communication beam for data communication reception from the second computing device via a second channel (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 7, while Periyalwar may disclose a multi-beam directed signal system that is further configured for simultaneous directed wireless transmission to the computing device and directed wireless reception from a second computing device (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase

side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 8, while Periyalwar may disclose a multi-beam directed signal system that is further configured to emanate the directed communication beam as an electromagnetic signal that includes transmission peaks and transmissions nulls within a coverage area of the communication beam (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 9, while Periyalwar may disclose a multi-beam directed signal system that is further configured to emanate the directed communication beam as an electromagnetic signal that includes a signal transmission peak within a first coverage area and a signal transmission null within a second coverage area; and the antenna assembly is further configured to emanate a second directed communication beam as a second electromagnetic signal that includes a second signal transmission peak within the second coverage area and a second signal transmission null within the first coverage area (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side

lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 10, while Periyalwar may disclose a multi-beam directed signal system that include an antenna assembly is further configured to emanate a second directed communication beam for the data communication with the computing device when the directed communication beam is determined ineffective for data communication (cited for the teachings at column 2 lines 5067 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 11, while Periyalwar may disclose a multi-beam directed signal system that is further configured to determine when the directed communication beam is ineffective for data communication with the computing device, and is further configured to generate the directed wireless communication for the data communication via a second directed communication beam; and the antenna assembly is further configured to emanate the second directed communication beam for the data communication with the computing device (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data

communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 12, while Periyalwar may disclose a multi-beam directed signal system that is further configured to emanate multiple directed communication beams, and wherein the multi-beam directed signal system includes signal coordination logic that monitors the multiple directed communication beams each as an individual access point (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction. Regarding claim 13-15, while Periyalwar may disclose a multi-beam directed signal system that includes signal coordination logic that controls a directed wireless transmission to the computing device and directed wireless reception from a second computing device such that the directed wireless transmission does not interfere with the directed wireless reception (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 16, the arguments above regarding Claim 1 and the inadequacies of Periyalwar and Adachi applications, alone or taken with Corbell et al., are reiterated here.

With respect to independent Claim 16, as for Claim 1, the claim includes a limitation of emanating a directed communication beam, associated with a transmission peak which is adjusted relative to other beams of a multi-beam directed signal system by beam forming in a non-omni directional manner, for the data communication with the computing device. The Periyalwar reference describes evaluating the quality of particular channels within a particular beam and a channel selection process based on the evaluation, but does not appear to describe adjusting or changing the communication beam, for example, by emanating a directed communication beam, associated with a transmission peak which is adjusted relative to other beams of a multi-beam directed signal system, for the data communication with the computing device.

And, as for Claim 1, neither the Adachi application nor Corbell et al., supply the missing limitations.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of independent Claim 16, as amended, as well as dependent Claims 17-24 which depend from independent Claim 16.

Regarding claim 17, while Periyalwar may disclose generating a second directed wireless communication for additional data communication with a second computing device; receiving the second directed wireless communication at the antenna assembly; and emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing

device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 18, while Periyalwar may disclose generating a second directed wireless communication for additional data communication with a second computing device; receiving the second directed wireless communication at the antenna assembly; emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device; and wherein the directed communication beam is emanated such that only the computing device will receive the data communication, and the second directed communication beam is emanated such that only the second computing device will receive the additional data communication (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 19, while Periyalwar may disclose generating a second directed wireless communication for additional data communication with a second computing device; receiving the second directed wireless communication at the antenna assembly; emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device; and wherein the directed communication beam is emanated from a first antenna element of the antenna assembly, and the second directed communication beam is emanated from a second antenna element of the antenna assembly (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3, lines 1-54), this is not

accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 20, while Periyalwar may disclose emanating a second directed communication beam, adjusted for a second transmission peak, for data communication reception from a second computing device, and wherein emanating the directed communication beam includes emanating the directed communication beam for data communication transmission to the computing device (Periyalwar, cited for the teachings at column 2 lines -50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 21, while Periyalwar may disclose transmitting the data communication to the computing device via the directed communication beam adjusted for transmission peak; receiving a second data communication from a second computing device via a second directed communication beam; and wherein transmitting the data communication and receiving the second directed data communication is simultaneous (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the

claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 22, while Periyalwar may disclose emanating the directed communication beam includes emanating an electromagnetic signal that includes transmission peaks and transmissions nulls within a coverage area of the directed communication beam (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 23, while Periyalwar may disclose determining that the directed communication beam is ineffective for the data communication with the computing device; and emanating a second directed communication beam for the data communication with the computing device (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional

manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 24, while Periyalwar may disclose transmitting the data communication to the computing device via the directed communication beam; receiving a second data communication from a second computing device via a second directed communication beam; and controlling transmitting the data communication such that the data communication does not interfere with receiving the second data communication (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

CONCLUSION

In light of the above remarks, Applicant believes that the application, as amended, is in condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to allowance.

This response is being filed with a fee and an extension of time to reply to the Office Action for 3 months. It is also being filed with a petition to revive for an unintentionally abandoned application.

Applicant authorizes any required fees requested to be charged to Deposit Account 50-1577. If the Examiner has any questions regarding this communication, he is invited to contact the undersigned at (916) 930-2585.

Respectfully submitted,

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